GEORGIA INSTITUTE OF TECHNOLOGY
Engineering Experiment Station

PROJECT INITIATION

Date: August 5, 1970

Project Title: Gamma-Radiation Survey for Heavy Minerals

Project No.: A-1274

Project Director: John E. Husted

Sponsor: El Paso Natural Gas Company

Effective August 1, 1970 Estimated to run until: January 31, 1971

Type Agreement: Industrial Research Project Amount: $ 10,400

Reports: Final - upon completion

Contact Person: Mr. Claude E. Barron
Senior Mining Geologist
El Paso Natural Gas Company
Mining Division
El Paso, Texas 79999

Assigned to Chemical Sciences & Materials Division

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RA-62(12-66)

GEORGIA INSTITUTE OF TECHNOLOGY
Engineering Experiment Station

PROJECT TERMINATION

Date October 21, 1971

PROJECT TITLE: Gamma-Radiation Survey for Heavy Minerals

PROJECT NO: A-1274

PROJECT DIRECTOR: Dr. John Husted

SPONSOR: ElPaso Natural Gas Company

TERMINATION EFFECTIVE: ~~October~~ 21, 1971

CHARGES SHOULD CLEAR ACCOUNTING BY: ~~October 31, 1971~~

Final Report has been submitted.

Upon liquidation of encumbrances, amount charged in excess of contract amount should be transferred to a division account.

Chemical Sciences and Materials Division

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m EES 402 (R10-62)

GEORGIA INSTITUTE OF TECHNOLOGY
EXPERIMENT STATION 225 North Avenue, Northwest · Atlanta, Georgia 30332

August 2, 1971

Mr. Claude E. Barron
Senior Mining Geologist
Mining Division
El Paso Natural Gas Company
El Paso, Texas 79999

Re: Project A-1274 (total)
Project A-1274-001
Project A-1274-005

Dear Mr. Barron:

Enclosed please find brief summary reports of the completion of our South Carolina work (A-1274-001) and the radiation studies in southeast Georgia (A-1274-005). Property maps and radiation contour (isorad) maps are being mailed under separate cover.

You will note that the Calcomp isorad plotting was done in india ink on mylar and should reproduce without trouble.

Recommendations for hand augering one hole each on five properties in Georgia are included.

Please let me express my pleasure in having the opportunity to have worked with you personally and with El Paso Natural Gas Company.

With best personal regards, I remain,

Sincerely yours,

John E. Husted, Head
Mineral Engineering Branch

JEH:mhf

enc.

cc: Dr. A. P. Sheppard
GTRI

PROGRESS REPORT

GEORGIA PHASE OF SEARCH FOR HEAVY MINERALS

ON PROPERTIES OF THE GEORGIA-PACIFIC CORPORATION

(A-1274-005)

July 27, 1971

MINERAL ENGINEERING BRANCH

ENGINEERING EXPERIMENT STATION

GEORGIA INSTITUTE OF TECHNOLOGY

ATLANTA, GEORGIA

Introduction

Radiation surveys of 23,028 acres were made on properties of the Georgia-Pacific Corporation in seven counties of southeast Georgia. One of the larger tracts, an island, could not be reached. Other areas not reached also were because of lack of accessibility (swamp conditions, etc.). The inaccessible tracts are not included in the above acreage figure.

Results

The results of the surveys are plotted as isorads on an overlay for the property maps. Values of the higher readings exceed the lower readings by an order of magnitude of 2 to 3 times.

Attached are a listing of traversed tracts, giving the readings at each point of radiation counting. The tracts are numbered 1 through 12 These numbers correspond with the circled areas shown on the accompanying state map of Georgia.

Recommendations

It is recommended that five auger samples be taken to determine feasibility of further drilling on tracts where relatively high readings were found.

Locations recommended are as follows:

County	Map Index No.	Tract Name	Acres	Site Number
Liberty	4	Youman	480	10
Long	9	Chapman	431	7
Screven	12	Black-Risher	3,338	30
Screven	10	Gainer-McRae	4,063	19
Tatnall	6	Lanes-Bridge	6,474	49

Included as part of this recommendation is that percent heavy minerals be obtained for the minus 4 x plus 270 mesh material at approximately five feet intervals. If heavy minerals exceed four percent of dry sample weight, then it is recommended that TiO_2 content be determined.

Estimated Costs of Sampling

It is estimated that costs should not exceed $2,000 and can be accomplished within funds already allocated in the total A-1274 budget. These are funds not spent under A-1274-001.

TRACT 1, ALTMAN TRACT, BULLOCH COUNTY, GEORGIA, 3263 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	.32	4.50	55
2	5.48	3.08	68
3	4.47	4.32	60
4	6.39	4.47	55
5	2.69	5.03	65
6	.88	6.38	65
7	6.91	1.81	62
8	8.58	1.62	60
9	10.46	1.80	66
10	10.28	3.59	63
11	10.06	4.38	90 (Th)
12	11.17	3.95	88
13	12.46	4.01	60
14	13.25	3.42	75
15	13.30	2.00	75
16	13.28	5.01	82
17	14.18	4.77	100 (Th)
18	15.06	4.90	85
19	11.76	1.27	65
20	3.80	2.92	62
21	1.88	3.58	60

TRACT 2, CASON TRACT, CHATHAM COUNTY, GEORGIA, 376 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings	
1	3.58	1.58	60	
2	3.21	1.92	70	
3	2.05	1.92	70	
4	1.60	1.25	100	
5	1.43	1.65	125	(Th) 2' sample
6	.97	1.57	85	
7	1.28	2.00	100	
8	.76	2.31	60	(Cs?) 5' sample
9	.34	2.01	60	
10	2.47	2.69	60	
11	1.92	3.72	75	
12	1.38	3.50	60	

TRACT 3, BARROW-OLIVER TRACT, CHATHAM COUNTY, GEORGIA, 828 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	4.16	5.08	75
2	3.41	5.09	100
3	2.78	5.30	100
4	2.18	4.93	95
5	1.69	5.58	50
6	1.12	3.96	95
7	.78	3.71	100
8	.73	4.66	75
9	.69	3.94	120
10	2.85	6.85	80
11	4.81	4.41	90

TRACT 4, YOUMANS TRACT, LIBERTY COUNTY, GEORGIA, 480 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	4.07	.70	135
2	2.72	.81	165
3	1.21	.96	145
4	1.23	1.47	120
5	1.51	2.41	90
6	1.37	3.11	100
7	2.31	3.36	120
8	3.42	3.32	175
9	3.90	2.52	110
10	1.05	3.61	210
11	.91	3.32	180
12	.43	3.45	120

TRACT 5, SHACKLEFORD TRACT SOUTH, PIERCE COUNTY, GEORGIA, 1545 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	3.58	5.40	70
2	5.27	4.68	80
3	6.20	3.89	90
4	6.48	2.32	70
5	6.60	1.46	60
6	6.55	.64	65
7	5.04	2.25	80
8	4.65	2.26	75
9	3.80	2.75	85
10	3.20	2.25	95
11	2.33	2.25	90
12	1.90	2.25	105
13	.98	2.25	90
14	.56	2.25	90
15	.15	2.25	55
16	.56	3.08	45
17	.97	1.00	70
18	1.91	.75	90
19	2.32	1.10	90
20	3.21	3.00	75
21	3.80	1.00	60
22	4.66	3.43	65
23	5.02	.75	85
24	5.78	5.30	80

TRACT 6, LANES BRIDGE TRACT, TATTNALL COUNTY, GEORGIA, 6474 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	6.50	4.68	115
2	6.50	3.75	230
3	6.58	2.68	190
4	6.00	1.96	200
5	6.75	1.67	230 K - Th
6	6.60	3.65	140
7	4.50	3.55	200
8	3.89	3.28	160
9	3.20	3.85	220
10	2.21	4.00	220
11	2.75	2.68	190
12	2.54	1.68	220
13	.40	5.27	200
14	1.20	3.56	200
15	3.55	4.50	190
16	3.95	2.77	150
17	5.13	2.40	210
18	8.45	5.00	80
19	9.56	4.74	160
20	10.45	4.59	110
21	11.82	5.03	130
22	12.45	5.58	160
23	13.12	5.60	130
24	12.59	4.07	190
25	13.36	3.00	215
26	14.28	3.28	200
27	15.00	3.80	160
28	15.62	4.56	150
29	14.48	2.65	240
30	16.15	3.22	225
31	17.98	4.00	230
32	18.10	5.65	220
33	19.76	5.12	240
34	21.30	5.86	240
35	22.15	5.97	240
36	23.30	5.96	220
37	23.90	5.93	170
38	22.70	7.42	240
39	24.06	7.89	220
40	25.05	8.07	220

TRACT 6 CONTINUED

Site Location Number	Map Coordinates X	Map Coordinates Y	Radiation Readings
41	25.96	7.90	200
42	25.56	8.43	200
43	24.90	9.01	190
44	25.80	9.43	110
45	25.68	10.12	125
46	24.70	9.90	160
47	21.33	7.28	170
48	21.88	8.35	180
49	21.30	4.43	250
50	20.40	3.50	190
51	21.21	3.78	220
52	22.40	3.90	160
53	23.50	4.35	250
54	24.76	4.62	200
55	17.20	7.39	180
56	16.90	8.70	210

TRACT 7, LUDOWICI #2 TRACT, GEORGIA, 509 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	4.79	1.05	90
2	3.94	1.82	100
3	2.21	3.30	110
4	.76	4.50	150
5	3.41	3.38	110

NO CONTOUR MAP

TRACT 8, LUDOWICI #1 TRACT, GEORGIA, 186 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	.68	4.23	90
2	1.37	4.72	180
3	2.12	4.03	220
4	3.27	3.58	100
5	.30	3.12	110
6	1.15	2.31	150

NO CONTOUR MAP

TRACT 9, CHAPMAN TRACT, LONG COUNTY, GEORGIA, 431 ACRES

Site Location Number	Map Coordinates X	Map Coordinates Y	Radiation Readings
1	2.92	2.46	110
2	3.90	2.91	110
3	4.12	4.06	100
4	3.27	5.22	120
5	2.25	5.87	150
6	2.13	4.96	140
7	1.53	4.30	160
8	1.80	3.73	120
9	3.06	4.70	120

TRACT 10, GAINER MCRAE TRACT, SCREVEN COUNTY, GEORGIA, 4063 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	11.21	12.91	70
2	12.25	11.05	65
3	13.68	9.41	75
4	12.90	7.84	80
5	11.00	7.39	75
6	12.00	5.72	65
7	13.00	4.49	110
8	14.30	3.81	80
9	13.20	5.45	120
10	14.80	5.28	95
11	15.35	4.38	90
12	16.45	4.79	80
13	17.40	5.60	80
14	18.22	6.11	140 (Th)
15	18.85	5.45	100
16	3.86	4.24	125
17	5.20	4.71	115
18	5.06	6.17	105
19	6.79	5.12	140
20	8.85	6.12	90
21	10.06	8.91	85
22	10.45	10.81	80
23	16.86	9.31	80
24	18.00	7.60	100
25	19.06	6.14	110

TRACT 11, HALLOCK TRACT, SCREVEN COUNTY, GEORGIA, 1535 ACRES

Site Location Number	Map Coordinates X	Map Coordinates Y	Radiation Readings
1	5.80	5.55	100
2	4.46	4.26	80
3	3.82	3.59	90
4	3.54	3.18	80
5	4.98	2.05	75
6	5.80	1.12	120
7	4.45	1.08	60
8	2.95	1.03	100
9	1.78	.49	55
10	2.79	4.60	60
11	1.40	6.00	60
12	.31	6.52	120
13	1.72	6.80	70
14	1.12	5.48	80
15	3.65	5.10	80
16	5.09	4.28	100
17	6.34	4.80	110
18	6.74	3.94	125

TRACT 12, BLACK TRACT, SCREVEN COUNTY, GEORGIA, 3338 ACRES

Site Location Number	Map Coordinates X	Y	Radiation Readings
1	8.85	10.20	80
2	9.56	8.74	90
3	8.01	9.73	90
4	7.62	11.11	90
5	8.60	8.71	130
6	9.15	7.47	160
7	9.71	6.22	175 (K, Th)
8	7.93	8.10	90
9	7.29	9.25	90
	Risher		
10	6.63	8.00	80
11	5.52	8.83	85
12	4.79	6.30	110
13	5.98	4.82	175
14	4.75	4.10	195
15	3.70	4.08	120
16	6.49	5.45	175
17	6.90	4.04	200
18	7.29	3.01	180
19	7.50	.98	200 (Th, K)
20	9.17	4.10	210
21	9.90	3.98	210
22	10.29	4.61	195
23	11.59	6.20	200
24	13.55	6.75	210
25	15.53	7.16	195
26	15.94	4.93	210
27	13.22	7.85	180
28	12.00	4.00	200
29	13.79	4.87	200
30	11.16	2.35	240
31	3.01	1.84	120

FINAL REPORT

SOUTH CAROLINA PHASE OF SEARCH FOR HEAVY MINERALS ON PROPERTIES OF THE GEORGIA PACIFIC CORPORATION

(A-1274-001)

July 27, 1971

MINERAL ENGINEERING BRANCH

ENGINEERING EXPERIMENT STATION

GEORGIA INSTITUTE OF TECHNOLOGY

ATLANTA, GEORGIA

Introduction

The Mineral Engineering Branch of the Georgia Institute of Technology traversed approximately 75,000 acres of Georgia-Pacific Corporation's property in South Carolina with transportable gamma radiation detection and measuring equipment. As a result of these traverses, sample drilling was recommended to determine feasibility of additional drilling and economic potentials. Criteria, based on commercial heavy mineral operations in Florida and Georgia, were a minimum of four percent heavy minerals and a minimum of one percent titanium dioxide (TiO_2) in the total sample.

Size criteria were minus 4 and plus 270, Tyler screen sizes. Plus 4 mesh was largely roots and other debris. Minus 270 mesh is below recovery capability by either Humphrey Spiral or flotation with the present state of the art.

Summary of Results

On the basis of both percentage of heavy minerals and size, Ducktown No. 70, 15-20 feet of depth, was chosen for further analyses to determine the possibility of rare-earth bearing minerals being present in sufficient amount and value to warrant further study. Although one other sample (J. S. Wilson No. 8) had a higher concentration of heavy minerals, the very high percentage of minus 270 material ruled this out.

The heavy mineral percentage found in the sample used was 2.24 percent at 15-20 feet of depth in Duck Pond No. 70, Florence County, South Carolina. This heavy mineral fraction was checked with ultra-violet and zircon was found in moderate amounts. Neutron activation analysis of the same sample showed Ti as approximately one percent of the heavy mineral fraction (not total sample). The rare earths Lanthanum (La) and Samarium (Sm) were found in amounts less than one percent each. Traces of uranium were also found. Zirconium is not detectable by neutron activation.

Other elements were arsenic (As), sodium (Na), manganese (Mn), aluminum (Al), and vanadium (V). In general these are elements that one would associate with garnets or similar minerals. The minerals they were found in are obviously not there in economic amounts.

The tables that follow give the heavy mineral determinations on samples from the drilling.

Conclusions

Additional heavy mineral studies of the Georgia-Pacific Corporation's properties in South Carolina do not seem warranted on the basis of information in hand.

PROJECT A-1274-001

SAMPLE		DEPTH OF LAYER, FEET	MESH SIZE DISTRIBUTION +4 %	-4 +28 %	-28 +270 %	-270 %	HEAVY MINERALS CONTENT ON BASIS OF -4 MESH CUT %	ON BASIS OF TOTAL DRY SAMPLE %
J. S. Wilson	# 1	5 - 10	.1	12.0	55.3	32.6	.53	.53
Sumter County		10 - 15	.4	41.4	49.3	8.9	.59	.59
		15 - 20	9.2	18.2	52.5	20.1	1.74	1.58
		20 - 25	1.1	21.5	54.0	23.4	1.46	1.44
J. S. Wilson	# 6	0 - 4	.2	14.7	59.8	25.3	.48	.48
		4 - 9' 6"	.2	11.1	55.7	33.0	.36	.36
		9' 6" - 14' 6"	8.7	18.4	33.9	39.0	.79	.72
		14' 6" - 19' 6"	1.5	17.4	34.7	46.4	.38	.37
		19' 6" - 24' 6"	0	3.5	33.4	63.1	.45	.45
J. S. Wilson	# 8	0 - 4' 7"	.6	11.0	62.0	26.4	.58	.58
		4' 7" - 9' 7"	0	10.4	57.1	32.5	.46	.46
		7' 7" - 14' 7"	0	11.5	43.4	45.1	.36	.36
		14' 7" - 19' 7"	0	.5	19.4	80.1	1.45	1.45
		19' 7" - 24' 7"	0	.7	9.8	89.5	2.83	2.83
Ryan and Wilson	# 1	5 - 10	0	31.3	48.5	20.2	.15	.15
Sumter County		10 - 15	0	44.4	35.0	20.6	.18	.18
		15 - 20	0	2.2	82.5	15.3	.19	.19
		20 - 25	0	.4	81.8	17.8	.66	.66
Ryan and Wilson	# 5	0 - 5	.2	33.3	47.8	18.7	.25	.25
		5 - 10	0	28.9	30.3	40.8	.08	.08
		10 - 15	0	7.4	33.1	59.5	.05	.05
		15 - 20	.1	35.2	43.4	21.3	.22	.22
		20 - 25	.5	41.6	45.7	12.2	.10	.10
Duck Pond	# 4	0 - 5	0	6.5	59.5	34.0	.15	.15
Florence County		5 - 10	0	27.4	51.1	21.5	.30	.30
		10 - 15	.4	39.1	57.8	2.7	.31	.31
		15 - 20	.8	45.7	49.5	4.0	.40	.40
		20 - 25	.7	49.0	46.2	4.1	.45	.45
Duck Pond	# 12	0 - 5	0	1.7	64.4	33.9	.62	.62
		5 - 10	0	26.4	63.4	10.2	.52	.52
		10 - 15	.3	57.3	40.3	2.1	.20	.20

SIZE DISTRIBUTION AND HEAVY MINERALS CONTENT OF DRILL SAMPLES

PROJECT A-1274-001

SAMPLE		DEPTH OF LAYER, FEET	MESH SIZE DISTRIBUTION +4 %	-4 +28 %	-28 +270 %	-270 %	HEAVY MINERALS CONTENT ON BASIS OF -4 MESH CUT %	ON BASIS OF TOTAL DRY SAMPLE %
Duck Pond	# 12	15 - 20	.1	45.3	52.8	1.9	.34	.34
		20 - 25	.4	48.5	48.3	2.8	.39	.39
E-1 (Ryan and Wilson, Hole No. 1 + J. S. Wilson, Hole No. 1) Sumter County		0 - 2' 6"	2.1	15.7	62.3	19.9	0.44	0.43
E-2 (Ryan and Wilson, Hole No. 1 + J. S. Wilson, Hole No. 1)		2' 6" - 5'	0	22.1	57.2	20.7	0.34	0.34
Duck Pond Florence County	# 15	0 - 5	0.0	6.1	43.7	51.2	.31	.31
		5 - 10	.2	35.6	55.2	9.0	.35	.35
		10 - 15	.2	45.8	49.3	4.7	.25	.25
		15 - 20	.2	38.3	50.6	10.9	.27	.27
		20 - 25	.2	43.9	47.7	8.2	.26	.26
Duck Pond	# 17	0 - 5	0	0.6	51.6	47.8	.56	.56
		5 - 10	.3	9.6	48.1	42.0	.50	.50
		10 - 15	8.8	61.6	21.7	7.9	.18	.16
		15 - 20	4.4	46.8	35.6	13.2	.26	.25
		20 - 25	10.0	49.2	33.9	6.9	.52	.47
Duck Pond	# 41	0 - 5	0.3	1.2	62.3	36.2	.72	.72
		5 - 10	0	11.7	80.1	8.2	.68	.68
		10 - 15	0.2	22.7	71.3	5.8	.50	.50
		15 - 20	1.1	27.4	64.0	7.5	.48	.47
		20 - 25	2.5	25.1	63.5	8.9	.54	.53
Duck Pond	# 46	0 - 5	0	1.4	20.0	78.6	.21	.21
		5 - 10	0	2.1	76.7	21.2	1.44	1.44
		10 - 15	0.4	36.6	56.8	6.2	.66	.66
		15 - 20	2.5	33.7	43.5	20.3	.74	.72
		20 - 25	1.3	40.1	50.5	8.1	.52	.51
Duck Pond	# 53	0 - 5	0	1.2	51.7	47.1	.62	.62
		5 - 10	0	15.0	75.4	9.6	1.16	1.16

PROJECT A-1274-001

SAMPLE		DEPTH OF LAYER, FEET	MESH SIZE DISTRIBUTION +4 %	-4 +28 %	-28 +270 %	-270 %	HEAVY MINERALS CONTENT ON BASIS OF -4 MESH CUT %	ON BASIS OF TOTAL DRY SAMPLE %
Duck Pond	# 53	10 - 15	0.4	19.3	75.6	4.7	1.00	1.00
		15 - 20	0.6	26.6	69.9	2.9	.98	.97
		20 - 25	0	42.3	55.7	2.0	.53	.53
Duck Pond	# 64	0 - 5	0	9.4	77.4	13.2	1.48	1.48
		5 - 10	0	13.8	74.2	12.0	1.85	1.85
		10 - 15	0	23.7	75.0	1.3	1.52	1.52
		15 - 20	0	27.3	68.0	4.7	1.40	1.40
		20 - 25	0	29.9	65.7	4.4	1.11	1.11
Duck Pond	# 70	0 - 5	0	0.2	77.4	22.4	1.26	1.26
		5 - 10	0	0.3	67.0	32.7	1.49	1.49
		10 - 15	3.8	14.5	72.5	9.2	2.10	2.02
		15 - 20	0.1	3.1	80.4	16.4	2.24	2.24
		20 - 25	2.5	7.9	76.0	13.6	1.88	1.83
Duck Pond	# 74	0 - 5	0	3.5	66.5	30.0	.72	.72
		5 - 10	0	27.0	50.4	22.6	.26	.26
		10 - 15	0	55.3	29.7	15.0	.29	.29
		15 - 20	.1	48.0	44.8	7.1	.40	.40
		20 - 25	.2	48.4	43.2	8.2	.40	.40
Barnfield Farm Dillon County	# 2	0 - 5	.4	27.1	49.5	23.0	0.9	0.8
		5 - 10	0.0	2.2	30.3	67.5	0.4	0.4
		10 - 15	0.0	2.9	20.8	76.3	.5	.5
		15 - 20	0.0	3.3	33.6	63.1	1.00	1.00
		20 - 25	0.0	3.0	44.8	52.2	1.5	1.5
Barnfield Farm	# 8	0 - 5	.2	8.3	29.1	62.4	1.2	1.2
		5 - 10	0.0	23.9	38.3	37.8	1.0	1.0
		10 - 15	2.0	65.8	24.8	7.4	.5	.5
		15 - 20	.8	67.2	27.0	5.0	.7	.7
		20 - 25	.8	42.4	50.0	6.8	1.3	1.3
Pee Dee Hunting Club Chesterfield County	# 2	0 - 5	0.0	.6	55.7	43.7	1.2	1.2
		5 - 10	0.0	2.1	82.8	15.1	1.9	1.9
		10 - 15	0.0	6.0	88.7	5.6	2.5	2.5

SIZE DISTRIBUTION AND HEAVY MINERALS CONTENT OF BASE SAMPLES

PROJECT A-1274-001

SAMPLE		DEPTH OF LAYER, FEET	MESH SIZE DISTRIBUTION +4 %	-4 +28 %	-28 +270 %	-270 %	HEAVY MINERALS CONTENT ON BASIS OF -4 MESH CUT %	ON BASIS OF TOTAL DRY SAMPLE %
Pee Dee Hunting Club	# 2	15 - 20	0.0	17.8	76.3	5.9	1.2	1.2
		20 - 22' 6"	.2	28.6	67.8	3.4	.8	.8
Pee Dee Hunting Club	# 6	0 - 5	0.0	13.2	77.8	9.0	1.5	1.5
		5 - 10	.1	12.2	85.4	2.3	2.4	2.4
		10 - 15	6.5	26.5	64.8	2.2	1.8	1.6
		15 - 20	5.5	19.8	72.1	2.6	1.8	1.7
		20 - 25	1.3	28.4	68.2	2.1	1.8	1.8
Pee Dee Hunting Club	# 11	0 - 5	0.0	10.4	58.6	31.0	.9	.9
		5 - 10	.3	2.4	56.2	41.1	1.6	1.6
		10 - 15	.2	16.2	73.7	9.9	1.6	1.6
		15 - 20	2.1	40.3	51.2	6.4	1.0	1.0
		20 - 25	2.1	55.3	39.3	3.3	1.2	1.2
Williams Plantation Florence County	# 4	0 - 5	.1	3.0	48.2	48.7	1.2	1.2
		5 - 10	.1	6.6	82.5	10.8	1.5	1.5
		10 - 15	1.2	26.5	68.3	4.0	1.0	1.0
		15 - 20	4.2	40.2	52.5	3.1	.5	.5
		20 - 25	0.0	28.7	68.7	2.6	.6	.6
Williams Plantation	# 8	0 - 5	0.0	1.1	60.9	38.0	.8	.8
		5 - 10	0.0	2.0	81.5	16.5	.8	.8
		10 - 15	4.2	25.4	63.7	6.7	.7	.7
		15 - 20	4.2	42.0	48.7	5.1	.5	.5
		20 - 25	9.4	61.0	26.0	3.6	.5	.4
Woodbury Marion County	# 2	0 - 5	0.0	19.5	70.8	9.7	.7	.7
		5 - 10	0.0	20.8	71.2	8.0	.6	.6
		10 - 15	0.0	22.0	72.1	5.9	.6	.6
		15 - 20	.1	25.9	68.7	5.3	.5	.5
		20 - 25	.2	24.1	68.8	6.9	.6	.6
Woodbury	# 3	0 - 5	.1	6.2	72.6	21.1	1.46	1.46
		5 - 10	0	16.7	68.7	14.6	1.22	1.22
		10 - 15	0	28.8	63.1	8.1	.78	.78
		15 - 20	0	15.9	62.5	21.6	.92	.92

SAMPLE		DEPTH OF LAYER, FEET	MESH SIZE DISTRIBUTION +4 %	-4 +28 %	-28 +270 %	-270 %	HEAVY MINERALS CONTENT ON BASIS OF -4 MESH CUT %	ON BASIS OF TOTAL DRY SAMPLE %
Woodbury	# 3	20 - 25	.5	37.0	60.2	2.3	.82	.82
Woodbury	# 4	0 - 5	0	24.1	71.6	4.3	.45	.45
		5 - 10	0	19.5	78.4	2.1	.64	.64
		10 - 15	0	28.3	70.2	1.5	.68	.68
		15 - 20	0	33.4	64.2	2.4	.76	.76
		20 - 25	0	28.1	70.0	1.9	.84	.84
Woodbury	# 7	0 - 5	0	1.4	43.8	54.8	.84	.84
		5 - 10	0	1.0	48.0	51.0	.82	.82
		10 - 15	0	.1	89.5	10.4	1.52	1.52
		15 - 20	0	.5	90.5	9.0	1.38	1.38
		20 - 25	0	16.0	72.9	11.1	1.06	1.06
Woodbury	# 8	0 - 5	0	7.1	76.7	16.2	.86	.86
		5 - 10	0	2.4	64.4	33.2	.86	.86
		10 - 15	0	4.9	51.6	43.5	.74	.74
		15 - 20	0	39.8	58.8	1.4	.81	.81
		20 - 25	.3	24.3	65.5	9.9	.72	.72
Woodbury	# 9	0 - 5	0	13.2	76.0	10.8	.64	.64
		5 - 10	0	14.3	80.3	5.4	.72	.72
		10 - 15	0	12.6	82.4	5.0	.75	.75
		15 - 20	0	15.2	78.8	6.0	.74	.74
		20 - 25	.1	18.7	74.4	6.8	.58	.58
Gunter Island L. T. Horry County	# 1	0 - 5	.1	6.3	79.8	13.8	.58	.58
		5 - 10	0	4.4	85.0	10.6	.79	.79
		10 - 15	0	7.0	87.8	5.2	.76	.76
		15 - 20	0	19.6	74.0	6.4	.56	.56
		20 - 25	.1	22.5	73.9	3.5	.71	.71
Gunter Island L. T.	# 10	0 - 5	1.9	7.7	80.8	9.6	.68	.67
		5 - 10	17.7	14.2	63.0	5.1	.48	.40
		10 - 15	.3	29.5	67.7	2.5	.43	.43
		15 - 20	.1	24.9	72.2	2.8	.56	.56
		20 - 25	.5	28.1	68.6	2.8	.58	.58

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SAMPLE		DEPTH OF LAYER, FEET	MESH SIZE DISTRIBUTION +4 %	-4 +28 %	-28 +270 %	-270 %	HEAVY MINERALS CONTENT ON BASIS OF -4 MESH CUT %	ON BASIS OF TOTAL DRY SAMPLE %
Gunter Island L. T.	# 15	0 - 5	0.0	7.3	84.5	8.2	.5	.5
		5 - 10	0.0	14.9	80.1	5.0	.4	.4
		10 - 15	0.0	21.8	69.9	8.3	.3	.3
		15 - 20	0.1	18.1	76.7	5.1	.5	.4
		20 - 25	0.0	21.5	74.0	4.5	.4	.4
Gunter Island L. T.	# 18	0 - 5	0.0	10.1	87.1	2.8	.9	.9
		5 - 10	0.0	15.7	82.6	1.7	.5	.5
		10 - 15	0.0	14.2	82.7	3.1	.6	.6
		15 - 20	0.2	15.7	80.6	3.5	.5	.5
		20 - 25	0.1	17.0	79.8	3.1	.6	.6
Gunter Island L. T.	# 23	0 - 5	0.0	4.1	76.2	19.7	.7	.7
		5 - 10	0.1	40.1	57.8	2.0	.3	.3
		10 - 15	0.0	31.6	65.6	2.8	.3	.3
		15 - 20	0.1	41.0	57.1	1.9	.3	.3
		20 - 25	0.2	39.6	57.7	2.5	.4	.4
Gunter Island L. T.	# 31	0 - 5	0.0	12.5	73.2	14.3	.7	.7
		5 - 10	0.0	17.7	76.0	6.3	.6	.6
		10 - 15	0.0	17.7	78.0	4.3	.5	.5
		15 - 20	0.0	19.2	76.8	4.0	.6	.6
		20 - 25	0.1	24.2	72.5	3.2	.6	.6
Gunter Island L. T.	# 36	0 - 5	0.0	19.0	74.4	6.6	.5	.5
		5 - 10	0.0	23.1	73.5	3.4	.5	.5
		10 - 15	0.0	34.8	62.4	2.8	.4	.4
		15 - 20	0.0	26.7	67.9	5.4	.4	.4
		20 - 25	1.0	27.3	64.6	7.1	.5	.5